UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,277	03/27/2006	Zhi Hong	18545-716.831	8861

21971 7590 06/10/2009

WILSON SONSINI GOODRICH & ROSATI
650 PAGE MILL ROAD
PALO ALTO, CA 94304-1050

EXAMINER	
SKOWRONEK, KARLHEINZ R	

ART UNIT	PAPER NUMBER
1631	

MAIL DATE	DELIVERY MODE
06/10/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/540,277	HONG ET AL.	
	Examiner	Art Unit	
	KARLHEINZ R. SKOWRONEK	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 February 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26 and 28-32* is/are pending in the application.

4a) Of the above claim(s) *1-26 and 31* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *28,29 and 32* is/are rejected.

7)☒ Claim(s) *32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Status

Claims 1-26 and 28-32 are pending.

Claim 27 is cancelled.

Claims 1-26 and 31 are withdrawn as being directed to a non-elected invention the election made without traverse on 13 May 2008.

Claims 28-29 and 32 have been examined.

Claims 28-29 and 32 are rejected.

Claim 32 is objected to.

Drawings

The petition to enter color drawings filed 21 June 2005 has been approved, as set forth in the letter mailed 6/3/09.

Specification

Response to Arguments

The objection to the specification regarding the use of trademarks is withdrawn in view of the amendments to the specification.

Claim Objections

Response to Arguments

The objection to claim 27 is withdrawn in view of the cancellation of claim 27.

Claim 32 is objected to because of the following informalities: Line 7 of claim 32 recites "exposing K1 and K2" however it may be more appropriate for line 7 to recite "exposing cells expressing K1 and K2" to make it more consistent with lines 8-12. Appropriate correction is required.

Claim Rejections - 35 USC § 112

Response to Arguments

The rejection of claims 27-30 is withdrawn in view of the cancellation of claim 27.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The following rejection is necessitated by amendment of the claims.

Claims 28-30 and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 32 recites in line 9 "a kinase in the first kinase, K1, signaling pathway" the metes and bounds are rendered indefinite by the phrase. K1 refers to a particular kinase as indicated in line 5. The variable K1 is then, in line 9, apparently redefined to indicate a particular pathway. The inconsistent use of the variable K1 makes the claim indefinite.

Claim 32 recites in line 11 "a kinase in the second kinase, K2, signaling pathway" the metes and bounds are rendered indefinite by the phrase. K2 refers to a particular kinase as indicated in line 6. The variable K2 is then, in line 11, apparently redefined to

indicate a particular pathway. The inconsistent use of the variable K2 makes the claim indefinite.

Claim 32 recites the limitation "the kinase-driven first and second data sets" in line 13. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

Response to Arguments

The rejection of claims 27-30 is withdrawn in view of the cancellation of claim 27.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The following is a new rejection necessitated by the cancellation of claim 27 and the addition of claim 32.

Claims 28 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sista et al. (Molecular and Cellular Biochemistry, Vol. 141, p. 129-134, 1994) in view of Stratowa et al. (Anti cancer Drug design, Vol. 14, p. 393-402, 1999).

The claims are directed to a method in which inhibition data sets are provided by transforming a base cell that is stably transfected with a reporter construct with each of two kinases; the cells are exposed to a plurality of test compounds that are potential kinase inhibitors; measuring signal from the reporter gene for each of the kinase expressing cells with a detector; and calculating a comparison between the data from the first kinase-expressing cell and the data from the second kinase-expressing cells. Claim 28 is directed to an embodiment in which the kinases act in the same or different signaling pathways.

Sista et al. is directed to a method of identifying protein kinase C inhibitors. To accomplish this Sista et al created a base cell in which a reporter construct is stably

transfected into the cell. Sista et al shows the scheme for the reporter assay in figure 1. Sista et al shows that the reporter construct is composed of three components: an inducible response element; a basal element; and a reporter gene. Sista et al. a plurality of response elements can be used, such as TRE, kappaB, CREB, RAR, steroid, Ca^{2+}. Sista also shows that any of a plurality of reporter genes can be used, such as CAT, beta-gal, Luciferase, AP and hGH. In their experiments, Sista et al show the reporter construct of hGH is used and its expression is detected by detecting radiation in a radioimmunoassay (p. 130, col. 2). Sista et al shows a plurality of compounds are tested (p. 131, col. 1-2). Sista et al suggest that the reporter assay could also serve as a secondary screen for the cellular efficacy of any inhibitor identified (p. 131, col. 2). Sista suggest that the reporter assay should be modified by those of ordinary skill in the art by choosing the appropriate activator to mimic the related physiological condition under study such that the assay can be tailored to screen for inhibitors of the particular pathway (p. 132, col. 2).

Sista et al do not show the transfection of 2 kinases.

Stratowa et al is directed to screens of kinase inhibitors. Stratowa et al shows that successful drug discovery strategies depend on the development of assays suitable for the screening of large compound libraries (p. 394, col. 1). Stratowa et al. shows test cells were transformed with the receptor tyrosine kinases HER2 and at least IGFR (p. 397, col. 1). In figure 3, Stratowa et al shows the calculation of a normalized inhibition profile employing data from the assay of cells expressing the first kinase, HER2, against data from the assay of cells expressing the second kinase, IGFR. Stratowa et al

shows the advantage of using a primary/secondary screening strategy provides the advantage of allowing the assessment of an inhibitor of one kinase identified in the primary screen to be tested for selectivity against other kinases in the secondary screen (p. 400, col. 1).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the reporter assay of Sista et al to screen for kinase-specific inhibitors of Stratowa et al. because Stratowa et al shows the advantage of using a primary/secondary screening strategy provides the advantage of allowing the assessment of an inhibitor of one kinase identified in the primary screen to be tested for selectivity against other kinases in the secondary screen. One would have been motivated to do so by Sista et al who suggests the reporter assay could also serve as a secondary screen for the cellular efficacy of any inhibitor identified.

Claim 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sista et al. in view of Stratowa et al. as applied to claims 28 and 32 above, and further in view of Schlessinger et al. (Cell, Vol. 103, p. 211-2256, 13 October 2000).

Claims 29 and 30 are directed to specific signaling pathways.

Sista et al. in view of Stratowa et al. as applied to claims 28 and 32 above shows a method of identifying specific inhibitors of cellular signaling by screening cells comprising a reporter construct and a kinase to generate a data set measuring inhibition kinase action and comparing inhibition data sets of different kinases.

Sista et al. in view of Stratowa et al. does not do not address the particular pathways of the receptor tyrosine kinases as in claims 29 and 30.

Schlessinger reviews the signaling of the receptor tyrosine kinases. Schlessinger et al shows that the receptor tyrosine kinases activate a plurality of pathways such as JAK-STAT, PI3K-Akt, JNK-JUN, and MEK-ERK. The showing of Schlessinger et al that the receptor tyrosine kinases can activate a plurality of signaling pathways reads on the embodiments of the claims in which the transformed kinases act in the same or different pathways.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the reporter assay of Sista et in view of Stratowa et al. with the specific kinases of Schlessinger because all the claimed elements were known, in the prior art, and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded nothing more than predictable results to one of ordinary skill in the art at the time of the invention.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARLHEINZ R. SKOWRONEK whose telephone number is (571)272-9047. The examiner can normally be reached on 8:00am-5:00pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie Moran can be reached on (571) 272-0720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. R. S./
Examiner, Art Unit 1631

11 June 2009

/Marjorie Moran/
Supervisory Patent Examiner, Art Unit 1631